

## Remarks

Claims 1-8 are pending in the application. Claims 1-8 are rejected. All rejections are respectfully traversed.

Claims 1, 4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuchi et al., U.S. Patent No. 6,542,556 (Kuchi), in view of Walton et al., U.S. Patent Application Publication No. 2003/0235147 (Walton).

Regarding claims 1 and 8, Applicants' claim a multiple input/multiple output wireless communications system with variable rate encoding and subgroup selection, i.e., a subset of the available antenna subgroups are selected and used, depending on channel conditions.

The Kuchi invention stops where Applicants' invention begins. In fact, the system described by Kuchi could be improved by Applicants' invention.

The Kuchi invention describes a method and an apparatus for space-time coding of signals for transmission on multiple antennas. Nowhere does Kuchi suggest, show, describe or imply, in any way, the possibility of selecting subgroups of the available subgroups of antennas. On the contrary, the goal of the Kuchi invention is to utilize *all* available antennas.

Kuchi clearly states the problem to be solved as such: "Extension of the Alamouti method to more than two antennas is not straightforward." To

achieve his objectives, Kuchi demonstrates systems with 4 and 8 antennas. Those antennas are grouped into a constant number of subgroups, i.e., two subgroups, with either 2 or 4 antennas per subgroup. However, Kuchi does not disclose or even suggest the possibility of not using any of the subgroups. Clearly, it would be counterintuitive for Kuchi to try to do that, as Kuchi's interest lies in adding antennas to increase transmit diversity, not in removing antennas.

Furthermore, Applicants would like to point out to the Examiner that, in the arguments for his rejection of claim 5, the Examiner admits that "Kuchi does not disclose decreasing the number of antenna." Selecting subgroups of the available subgroups of antennas decreases the number of transmitting antennas, and if Kuchi, as admitted by the Examiner, does not decrease the number of antenna, then Kuchi does select subgroups of the available subgroups of antennas.

Similarly, Walton is only directed toward increasing transmit diversity and does not suggest selecting subgroups of antennas. Kuchi alone or in combination with Walton does not teach the selecting of a subset of the subgroups of antennas.

Regarding claim 4, the number of subgroups in Kuchi is constant and is always equal to two. Thus, Kuchi alone or in combination with Walton cannot and does not teach the adaptive modulation and coding that depends on the number of substreams.

Claim 6 and 7 are dependent on claim 1. As the combination of Kuchi and Walton fail to teach selecting subgroups of antennas, the combined references cannot make the claimed invention obvious.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuchi in view of Walton as applied to claim 1 above, and further in view of Naden et al., U.S. Patent No. 7,184,703 (Naden).

As stated above, Kuchi has a constant number (two) of substreams and Kuchi does not select the substreams. Thus, there is no motivation for combining Kuchi with Naden. And even if these two references were combinable, Naden does not cure the defects of Kuchi.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuchi in view of Walton as applied to claim 1 above, and further in view of Kim, U.S. Patent Application Publication No. 2003/0103474 (Kim).

Claimed is a method in which  $L$  is zero to increase an overall capacity of the system including a plurality of receivers. Kim does not teach this limitation. Also, as described above, Kuchi does not teach the selecting subgroups of available subgroups of antennas. Thus, Kim does not cure the limitation of Kuchi.

It is believed that this application is now in condition for allowance. A notice to this effect is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicants'

